IN THE CLAIMS

The pending claims are as follows:

1-3. (Cancelled).

4. (Currently Amended) ~~The method according to claim 3~~A method for adaptively minimizing the total power consumption of an apparatus comprising a subsystem comprising a mass storage device and a buffer memory, said method comprising the steps of:

determining an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate to/from said buffer memory; and

adjusting the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal,

wherein the storage device is a hard disk drive and the step of determining an optimum buffer size comprises:

determining a hard disk drive data rate of the hard disk drive;

determining the stream bit-rate to/from the buffer memory; and

determining the optimum buffer size having the lowest power consumption at the determined stream bit-rate,

and wherein said optimum buffer size determination step comprises calculating optimum buffer size from a formula, looking up optimum buffer size in a look-up table, or measuring the minimum

power consumption of the subsystem in a feedback loop controlling buffer size.

5. (Currently Amended) ~~The method according to claim 1~~A method for adaptively minimizing the total power consumption of an apparatus comprising a subsystem comprising a mass storage device and a buffer memory, said method comprising the steps of:

determining an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate to/from said buffer memory; and

adjusting the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal, wherein the optimum buffer size is determined by the ratio of the stream bit rate and the disk bit rate giving the duty cycle of the hard disk drive for calculating/estimating the hard disk drive power consumption, which subsequently is used to determine the optimal buffer size.

6. (Currently Amended) ~~The method according to claim 1~~A method for adaptively minimizing the total power consumption of an apparatus comprising a subsystem comprising a mass storage device and a buffer memory, said method comprising the steps of:

determining an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate to/from said buffer memory; and

adjusting the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal, wherein said method further comprises the step of:

powering up extra memory banks and/or memory integrated circuits (ICs) when a new stream is admitted.

7. (Currently Amended) ~~The method according to claim 1~~A method for adaptively minimizing the total power consumption of an apparatus comprising a subsystem comprising a mass storage device and a buffer memory, said method comprising the steps of:

determining an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate to/from said buffer memory; and

adjusting the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal, wherein a powering down of a memory bank or integrated circuit (IC) is either delayed or the buffered data of that memory bank or IC is moved to another memory bank that will remain powered on after which the first bank is shut down immediately, when a stream is stopped and removed.

8. (Currently Amended) ~~The method according to claim 1~~A method for adaptively minimizing the total power consumption of an apparatus comprising a subsystem comprising a mass storage device and a buffer memory, said method comprising the steps of:

determining an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate to/from said buffer memory; and

adjusting the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal, wherein in case of multiple simultaneous streams, the sum of the bit-rates of all streams is determined.

9. (Currently Amended) A circuit for retrieving data from a mass storage device via a memory buffer comprising a processing unit conceived to:

adaptively activate or deactivate areas of said buffer memory in such a manner that total power consumption of a subsystem comprising said storage device and said buffer memory is minimized for a given streaming rate to/from said buffer memory; and

retrieve the data from the mass storage device,

wherein the processing unit determines the optimum buffer size by the ratio of the stream bit rate and the disk bit rate giving the duty cycle of the hard disk drive for calculating/estimating the hard disk drive power consumption, which the processing unit subsequently uses to determine the optimal buffer size.

10. (Original) An apparatus comprising a subsystem comprising mass storage device, a buffer memory and the circuit according to claim 9.

11. (Original) The apparatus according to claim 10, wherein said buffer memory comprises SDRAM circuits having banks of memory adapted to be independently switched on/off.

12. (Previously Presented) The apparatus according to claim 10, wherein a scheduler function executable by the processing unit controls accessing the storage device and the buffer memory.

13. (Currently Amended) A computer-readable medium having embodied thereon a computer program for processing by a computer, the computer program comprising code segments for causing the computer to adaptively minimize the total power consumption of a subsystem comprising a mass storage device and a buffer memory, wherein:

a first code segment causes the computer to determine an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate from said buffer memory; and

a second code segment causes said computer to adjust the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal,

wherein the first code segment causes the computer to determine the optimum buffer size by the ratio of the stream bit rate and the disk bit rate giving the duty cycle of the hard disk drive for calculating/estimating the hard disk drive power

consumption, which the computer subsequently uses to determine the optimal buffer size.

14. (Cancelled).

15. (Previously Presented) ~~The method according to claim 14~~A method for adaptively minimizing the total power consumption of an apparatus comprising a subsystem comprising a mass storage device and a buffer memory, said method comprising the steps of:

determining an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate to/from said buffer memory; and

adjusting the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal,

wherein said step of adjusting the buffer size comprises switching on memory banks and/or memory integrated circuits (ICs) of said buffer memory for increasing the size of said buffer memory, and switching off memory banks and/or memory ICs for decreasing said buffer memory,

wherein the storage device is a hard disk drive and the step of determining an optimum buffer size comprises

determining a hard disk drive data rate,

determining the stream bit-rate to/from the buffer memory, and

determining the optimum buffer size having the lowest power consumption at the determined stream bit-rate,

and wherein the optimum buffer size is determined by the ratio of the stream bit rate and the disk bit rate giving the duty cycle of the hard disk drive for calculating/estimating the hard disk drive power consumption, which subsequently is used to determine the optimal buffer size.

16. (Previously Presented) ~~The method according to claim 2~~A method for adaptively minimizing the total power consumption of an apparatus comprising a subsystem comprising a mass storage device and a buffer memory, said method comprising the steps of:

determining an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate to/from said buffer memory; and

adjusting the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal,

wherein said step of adjusting the buffer size comprises switching on memory banks and/or memory integrated circuits (ICs) of said buffer memory for increasing the size of said buffer memory, and switching off memory banks and/or memory ICs for decreasing said buffer memory,

and wherein the optimum buffer size is determined by the ratio of the stream bit rate and the disk bit rate giving the duty cycle of the hard disk drive for calculating/estimating the hard

disk drive power consumption, which subsequently is used to determine the optimal buffer size.

17. (Previously Presented) ~~The method according to claim 3~~A method for adaptively minimizing the total power consumption of an apparatus comprising a subsystem comprising a mass storage device and a buffer memory, said method comprising the steps of:

determining an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate to/from said buffer memory; and

adjusting the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal,

wherein the storage device is a hard disk drive and the step of determining an optimum buffer size comprises:

determining a hard disk drive data rate of the hard disk drive;

determining the stream bit-rate to/from the buffer memory; and

determining the optimum buffer size having the lowest power consumption at the determined stream bit-rate,

and wherein the optimum buffer size is determined by the ratio of the stream bit rate and the disk bit rate giving the duty cycle of the hard disk drive for calculating/estimating the hard disk drive power consumption, which subsequently is used to determine the optimal buffer size.

18. (Previously Presented) The method according to claim 4, wherein the optimum buffer size is determined by the ratio of the stream bit rate and the disk bit rate giving the duty cycle of the hard disk drive for calculating/estimating the hard disk drive power consumption, which subsequently is used to determine the optimal buffer size.

19. (Previously Presented) ~~The method according to claim 2~~A method for adaptively minimizing the total power consumption of an apparatus comprising a subsystem comprising a mass storage device and a buffer memory, said method comprising the steps of:

determining an optimum buffer size for which the power consumption of said subsystem is a minimum for a given streaming bit-rate to/from said buffer memory; and

adjusting the buffer size of said buffer memory to said optimum buffer size, such that the power consumption of said subsystem is minimal,

wherein said step of adjusting the buffer size comprises switching on memory banks and/or memory integrated circuits (ICs) of said buffer memory for increasing the size of said buffer memory, and switching off memory banks and/or memory ICs for decreasing said buffer memory,

and wherein a powering down of a memory bank or IC is either delayed or the buffered data of that memory bank or IC is moved to another memory bank that will remain powered on, after

which the first bank is shut down immediately when a stream is stopped and removed.

20. (Previously Presented) The apparatus according to claim 11, wherein a scheduler function executable by the processing unit controls accessing the storage device and the buffer memory.